

10721 Bar Codes

A bar-code symbol consists of alternating dark and light bars, starting with a dark bar on the left. Each bar is a number of units wide. Figure 1 shows a bar-code symbol consisting of 4 bars that extend over $1 + 2 + 3 + 1 = 7$ units.

In general, the bar code $BC(n, k, m)$ is the set of all symbols with k bars that together extend over exactly n units, each bar being at most m units wide. For instance, the symbol in Figure 1 belongs to $BC(7, 4, 3)$ but not to $BC(7, 4, 2)$. Figure 2 shows all 16 symbols in $BC(7, 4, 3)$. Each '1' represents a dark unit, each '0' a light unit.

0: 1000100 | 4: 1001110 | 8: 1100100 | 12: 1101110
 1: 1000110 | 5: 1011000 | 9: 1100110 | 13: 1110010
 2: 1001000 | 6: 1011100 | 10: 1101000 | 14: 1110100
 3: 1001100 | 7: 1100010 | 11: 1101100 | 15: 1110110

Figure 2: All symbols of $BC(7, 4, 3)$

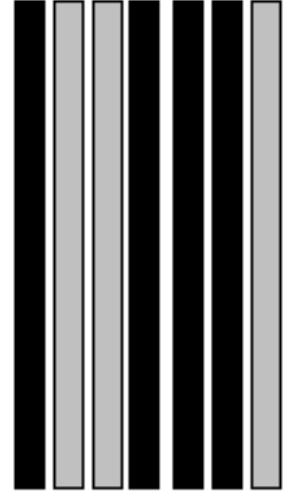


Figure 1: Bar-code over 7 units with 4 bars

Input

Each input will contain three positive integers n , k , and m ($1 \leq n, k, m \leq 50$).

Output

For each input print the total number of symbols in $BC(n, k, m)$. Output will fit in 64-bit signed integer.

Sample Input

7 4 3
 7 4 2

Sample Output

16
 4